

IGS Workshop 2006
"The International GNSS Service (IGS): Perspectives and Visions for 2010 and beyond"

Summary of Recommendations

Session : Reprocessing Issues, Standardization, New models (REPR)

- REPR1:** Station selection will be a list of recommendations after analysing “missing stations”
- REPR2:** NGA stations: Ask for full data set (past and current), otherwise no commitment. ACs should include them on a best effort basis.
- REPR3:** Processing summary: ACs need to provide information on their processing in the new summary before the reprocessing kick-off.
- REPR4:** Recommendations for common standards documented in the position paper.
- REPR5:** Troposphere: GMF recommended; troposphere combination still open
- REPR6:** P1-C1 DCBs to be used back to 1994 except for periods with AS off. As monthly averages or constant?
- REPR7:** Clock Files: Nominal 300 sec, 30 sec on a best effort basis (coordinated with LEO).
- REPR8:** For the current reprocessing effort weekly SINEX files shall be provided.
- REPR9:** Discontinuities: Should be indicated in SINEX files with validity intervals. Has to be clarified with combination centres.
- REPR10:** Reprocessed orbits should be validated with SLR.

Session: Ionosphere Products

- IONO1:** For analysis centers: To test the reprocessing performance and required resources in the IGS pilot reprocessing campaign (January-March 2000).
- IONO2:** For analysis centers: To consider the temporal resolution increasing of the maps to 15 min (during pilot reprocessing campaign?).
- IONO3:** For analysis centers: To consider the possibility of estimating maps of ionospheric effective heights (during pilot reprocessing campaign?).
- IONO4:** For users, second order ionospheric correction: Importance of using a more realistic geomagnetic model, such as the International Geomagnetic Reference Model (IGRM, Geopack subroutines, Tsyganenko, 2001), with a reduction of up to ~60% of correction error in certain regions

Session: Preparing the Strategic Plan 2008-2012: Solicitation of Ideas on the Future Needs of Scientific and other Users (VISI)

- VISI1:** The need for an IGS Strategic Planning (SP) retreat this year is confirmed.
- VISI2:** IGS infrastructure is to be considered in the SP (HW, SW, monumentation) – a WG is needed.
- VISI3:** IGS must identify and clarify the needs of its stakeholders (users, IGS centres, supporting organisations, IAG,...)
- VISI4:** There is a need to establish and maintain a list of users (and their applications). Registration for product access may be considered (again).
- VISI5:** An IGS WG should take care of interfaces with receiver manufacturers . In particular inputs concerning next generation receiver requirements should be gathered by the WG
- VISI6:** GGOS becomes a central objective, with IGS playing a leading role, intensifying interactions with other IAG services and commissions.
- VISI7:** (Efficient) reprocessing must become a permanent feature of the IGS .
- VISI8:** IGS has to play a more prominent role in the international context. More publications.

Session: Network and Data Centre issues (NWDC)

- NWDC1:** All IGS data flow is performed using “push” only and verified uncorrupted.
- NWDC2:** Stations/OCs, ODCs, and RDCs will define primary and secondary data centers to push their data to; IGS CB will create and maintain supplemental material summarizing this data flow
- NWDC3:** Stations/OCs should document replacement of data files and notify the IGS through automated procedures
- NWDC4:** IGS DCWG :
 - a) Perform limited test during 2006
 - d) Specify detailed implementation plan

Session: Real Time Network and Products (REAL)

- REAL1:** Call for participation in the pilot project shall be completed as soon as possible.
- REAL2:** The RTIGS working group shall complete the planned network in time for the start of the pilot project.
- REAL3:** The pilot project shall involve the broadest participation as possible from both within and outside of the IGS community.
- REAL4:** RTCM 3.0 shall be investigated for the purpose of determining whether or not it is a suitable format for adoption as the standard for use within the real-time IGS.
- REAL5:** During the pilot project, NTRIP shall be evaluated as a data and product delivery mechanism.
- REAL6:** The NTRIP community shall be encouraged to provide the UDP protocol as an option for the NTRIP server.

Session: GGNSS Modernization and GNSS/LEO Synergies (GNSS)

- GNSS1:** IGS AC's are encouraged to upgrade their current software capabilities to enable processing of hybrid GNSS data in order to base their submissions to all IGS product lines (orbits, clocks and atmosphere monitoring) on a complete set of GPS+GLONASS data.
- GNSS2:** IGS AC's (in dialog with manufacturers) are asked to perform simulation studies to identify an adequate/preferred ensemble of GNSS signals (based on currently available and upcoming GNSS signals) to be delivered by new GNSS receiver types which allows to improve (at least ensures to keep) the current quality of IGS GNSS products.
- GNSS3:** IGS AC's are encouraged to further integrate their LEO processing facilities with their IGS routine analysis facilities, in order to improve the understanding of current results for CHAMP and GRACE, and to enable LEO data analysis in parallel to the IGS re-processing effort.

Session: Switch to the absolute antenna phase center model (ABSA)

- ABSA1:** Transition to absolute PCVs (igs05_www.atx) is planned in parallel with the switch to the new ITRF2005 (~Sept 2006).
- ABSA2:** Existing calibrations in the ANTEX file (igs05_www.atx) will not be changed after the transition. Until that converted field calibrations can only be replaced by robot calibrations if not affecting the RF stations.
- ABSA3:** Add the storage of GLONASS specific receiver antenna corrections and carrier-to-noise patterns (CNO) to the ANTEX format
- ABSA4:** SINEX files shall include SATA_Z parameters (constrained).

Session: Identification and Mitigation of GNSS Errors (ERRO)

- ERRO1:** IGS should stimulate research leading to a better understanding of the different error sources and technique-related problems, in particular of not well understood effects such as near-field and internal multipath and their mitigation.
Possibilities are the organization of dedicated workshops or sessions at assemblies such as AGU or EGU or the preparation of a Journal of Geodesy Special Issue, inviting a wider community for participation.
- ERRO2:** Improve consistency between AC products and of combined IGS products, in particular for precise point positioning. As a first step ACs shall fill an analysis questionnaire that gives a detailed description of the analysis. Consistency with respect to used IERS Conventions has to be verified. All ACs shall implement the recommendation of Bern concerning consistency of orbits and clocks with ITRF.
- ERRO3:** The ACs shall evaluate the effects of Earth albedo and MW power thrust, the GMF/VMF1 mapping function, an improved hydrostatic zenith path delay (i.e., mean sea surface air pressure), higher order ionosphere corrections.
- ERRO4:** The effect of monumentation on near field multipath shall be studied further to identify an optimum monumentation. IGS station operators shall be encouraged to use optimum monument designs.
- ERRO5:** Overlap position differences of consecutive orbits shall be added to the rapid and final combination protocols.
- ERRO6:** The interface to receiver manufacturers has to be intensified to possibly agree on a common minimal tracking mode for IGS like activities. Investigate the possibility to use the GSTB-V2 network for studying the optimum Galileo signal combination.